To do this, first sum the time from each valid NTE sampling event whose average emission level is at or below the NTE threshold for that pollutant, then divide this value by the sum of the engine operating time from all valid NTE events for that pollutant. Round the resulting vehicle-pass ratio to two decimal places.

(1) Calculate the time-weighted vehicle-pass ratio for each pollutant as follows:

$$R_{pass} = \frac{\sum_{m=1}^{n_{pass}} t}{\sum_{k=1}^{n_{total}} t}$$

Where:

n_{pass} = the number of valid sampling events for which the average emission level is at or below the NTE threshold.

n_{total} = the total number of valid NTE sampling events.

(2) For both the numerator and the denominator of the vehicle-pass ratio, use the smallest of the following values for determining the duration, t, of any NTE sampling event:

(i) The measured time in the NTE control area that is valid for an NTE sampling event.

(ii) 600 seconds.

(iii) 10 times the length of the shortest valid NTE sampling event for all testing with that engine.

(e) The following example illustrates how to select the duration of NTE sampling events for calculations, as described in paragraph (d) of this section:

NTE sample	Duration of NTE sample (seconds)	Duration Limit Applied?	Duration used in calculations (seconds)
1	45	No	45
2	168	No	168
3	605	Yes. Use 10 times shortest valid NTE.	450
4	490	Yes. Use 10 times shortest valid NTE.	450
5	65	No	65

(f) Engines meet the vehicle-pass criteria under this section if they meet both of the following criteria:

(1) The vehicle-pass ratio calculated according to paragraph (d) of this section must be at least 0.90 for each pollutant.

(2) For model year 2007 through 2009 engines, emission levels from every valid NTE sampling event must be less than 2.0 times the NTE thresholds calculated according to paragraph (a) of this section for all pollutants, except that engines certified to a NO_X FEL at or below 0.50 g/bhp-hr may meet the vehicle-pass criteria for NO_X if measured NO_X emissions from every valid NTE sample are less than either 2.0 times the NTE threshold for NO_X or 2.0 g/bhp-hr, whichever is greater.

[70 FR 34619, June 14, 2005, as amended at 73 FR 13450, Mar. 13, 2008; 75 FR 68460, Nov. 8, 2010]

§ 86.1915 What are the requirements for Phase 1 and Phase 2 testing?

For all selected engine families, you must do the following:

(a) To determine the number of engines you must test from each selected engine family under Phase 1 testing, use the following criteria:

(1) Start by measuring emissions from five engines using the procedures described in § 86.1375. If all five engines comply fully with the vehicle-pass criteria in § 86.1912 for all pollutants, you may stop testing. This completes your testing requirements under this subpart for the applicable calendar year for that engine family.

(2) If one of the engines tested under paragraph (a)(1) of this section fails to comply fully with the vehicle-pass criteria in § 86.1912 for one or more pollutants, test one more engine. If this additional engine complies fully with the vehicle-pass criteria in § 86.1912 for all pollutants, you may stop testing. This completes your testing requirements under this subpart for the applicable calendar year for that engine family.

(3) If your testing results under paragraphs (a)(1) and (2) of this section do not satisfy the criteria for completing your testing requirements under those

paragraphs for all pollutants, test four additional engines so you have tested a total of ten engines.

(4) An engine that fails to fully comply with the vehicle-pass criteria in § 86.1912 for any pollutant does not comply with the vehicle-pass criteria in § 86.1912 for the purposes of determining the number of engines to test from each selected engine family under this paragraph.

(b) For situations where a total of ten engines must be tested under paragraph (a)(3) of this section, the results of Phase 1 testing lead to the following outcomes:

(1) If at least eight of the ten engines comply fully with the vehicle-pass criteria in § 86.1912 for all pollutants, you may stop testing. This completes your testing requirements under this subpart for the applicable calendar year for that engine family.

(2) If six or seven vehicles from the Phase 1 sample of test vehicles comply fully with the vehicle-pass criteria in § 86.1912 for all pollutants, then you must engage in follow-up discussions with us to determine whether any further testing (including Phase 2 testing), data submissions, or other actions may be warranted.

(3) If fewer than six of the ten engines tested under paragraph (a) of this section comply fully with the vehicle-pass criteria in § 86.1912 for all pollutants, we may require you to initiate Phase 2 testing, as described in paragraph (c) of this section.

(4) You may under any circumstances elect to conduct Phase 2 testing following the completion of Phase 1 testing. All the provisions of paragraph (c) of this section apply to this Phase 2 testing.

(c) If you perform Phase 2 testing for any reason, test your engines as follows:

(1) You must test ten additional engines using the test procedures described in § 86.1375, unless we require you to test fewer vehicles.

(2) We may give you any of the following additional directions in selecting and testing engines:

(i) We may require you to select a certain subset of your engine family. This may include, for example, engines within a specific power range, engines used in particular applications, or engines installed in vehicles from a particular manufacturer.

(ii) We may direct you to test engines in a way that simulates the type of driving and ambient conditions associated with high emissions experienced during Phase 1 testing.

(iii) We may direct you to test engines in a specific state or any number of contiguous states.

(iv) We may direct you to select engines from the same sources used for previous testing, or from different sources.

(v) We may require that you complete your testing and reporting under Phase 2 within a certain period. This period may not be shorter than three months and must allow a reasonable amount of time to identify and test enough vehicles. We would generally expect this testing to be completed within the overall time period specified in § 86.1905(d).

§ 86.1917 How does in-use testing under this subpart relate to the emission-related warranty in Section 207(a)(1) of the Clean Air Act?

(a) An exceedance of the NTE found through the in-use testing program under this subpart is not by itself sufficient to show a breach of warranty under Clean Air Act section 207(a)(1) (42 U.S.C. 7541(a)(1)). A breach of warranty would also require one of the following things:

(1) That, at the time of sale, the engine or vehicle was designed, built, and equipped in a manner that does not conform in all material respects reasonably related to emission controls to the engine as described in the application for certification and covered by the certificate; or

(2) A defect in materials or workmanship of a component causes the vehicle or engine to fail to conform to the applicable regulations for its useful life.

(b) To the extent that in-use NTE testing does not reveal such a material deficiency at the time of sale in the design or manufacture of an engine compared with the certified engine, or a defect in the materials and workmanship of a component or part, test results showing an exceedance of the NTE by